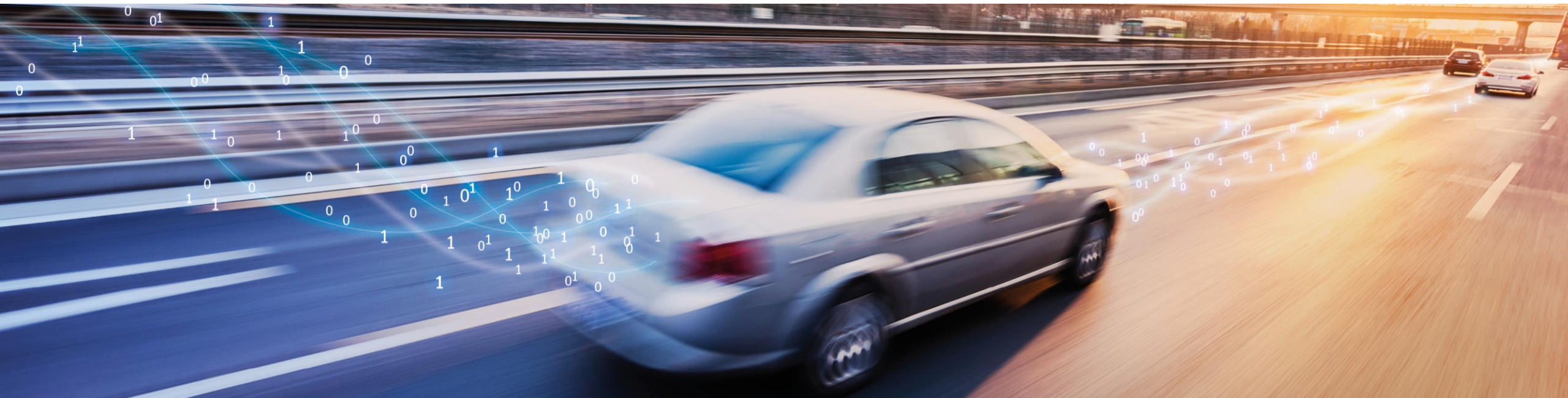


ASAM OSI v3.5.0

Release Presentation

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12.07.2022
Online



Agenda

- 1 Introduction**
- 2 Motivation for New Release**
- 3 New Features**
- 4 Backward-Compatibility**
- 5 Relation to Other Standards**
- 6 Deliverables**

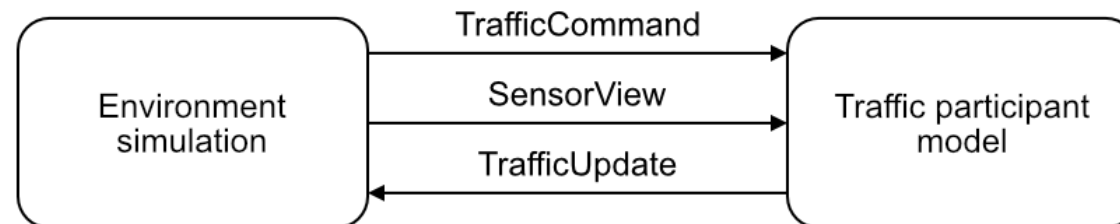
Introduction

Unchanged

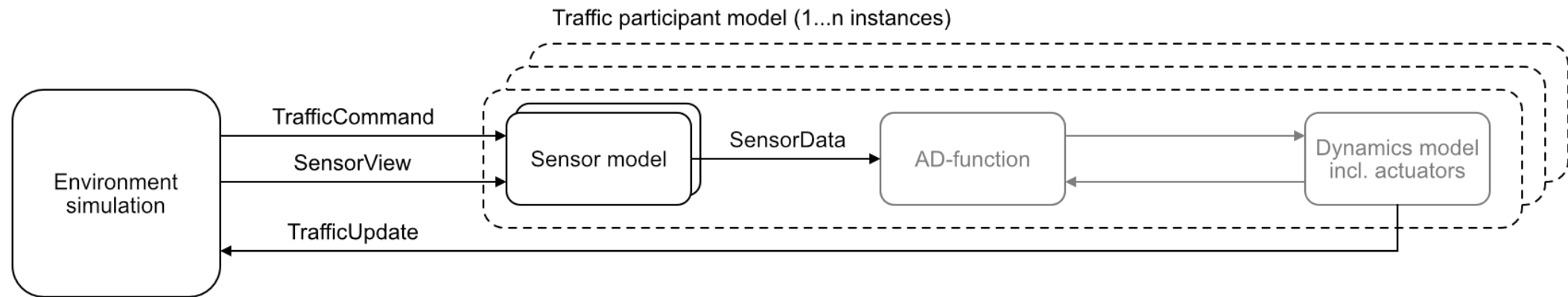
- The Open Simulation Interface (OSI) is a specification for interfaces between models and components of a distributed simulation.
- OSI has a strong focus on environmental perception of automated driving functions.



- OSI also defines interfaces for traffic participant models. These interfaces allow to send commands to traffic participant models and to receive their updated state.



- Traffic participant models may use other OSI interfaces internally, for example, to model autonomous vehicles. The following figure shows a more advanced use case for traffic participants.

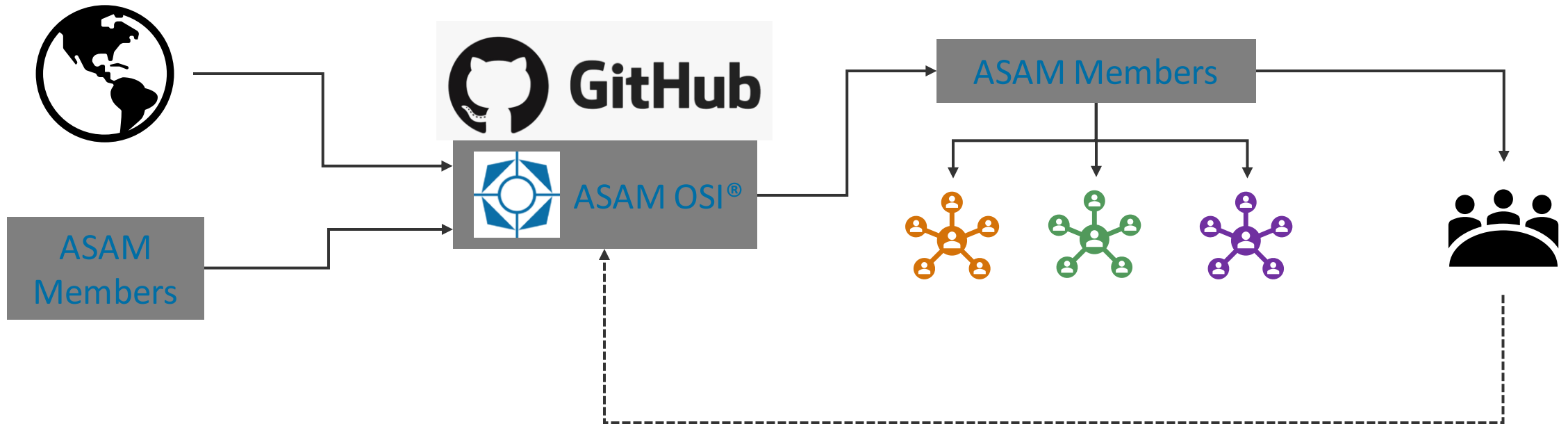


- OSI Sensor Model Packaging specifies ways in which models (like e.g. environmental effect models, sensor models and logical models) using the Open Simulation Interface (OSI) are to be packaged for their use in simulation environments using FMI 2.0.

Motivation

Unchanged

1. Cover new feature requests.
2. Improvements and updates on the changes that were introduced in v3.4.



Update From v3.4.0

Commitment for V3.5.0	Status	Comment
Feature/groundtruth configuration message #581	Draft	Solved by another pull request. Saved for further investigation – depending on interest.
Added Timestamp for each Moving Object. #546	Closed	
WIP: introducing mesh approach for modelling road surface #574	Closed	
Reworking BoundingBoxes #526	Closed	
WIP: Introduce PedestrianClassification #498	Open	Just so that it won't be lost, here are some brainstorming slides 20210611_ASAM_OSI_Pedestrians.pptx about the pedestrian discussions we had in 06/2021 and before. The discussions were about potential changes going beyond what is in this PR.
Add Longitudinal Rotation of Lane Boundaries #436	Open	This is nothing that can be handled by harmonization for 3.5.
Feature/tp/had output #452	Open	Postponed to V3.6.

- Proposal and non backward compatible features to be considered for v4.0.

New Features

Lanes

- Concretize lane boundary modelling for lanes at different heights:
 - The boundary between adjacent lanes at different heights (e.g. a curb between a driving lane and a sidewalk) should be modeled as two separate lane boundaries with individual ids.
- Logical Lanes in OSI
 - Adds "logical lanes" to OSI. These logical lanes correspond much more closely to lanes as defined in map formats like OpenDRIVE or OpenLaneModel. Thus, they can be used to represent maps more closely in a standard manner.
- Add dash property to boundary points (alternative with gap enum):
 - Introducing a further gap enum could enable to have invisible points that are located between dashes on a dashed line.
 - The current BoundaryPoint is located in the gap between two dashes.

New Features

Vehicle

- Add Role to VehicleClassification
 - The role specifies the perceived role of a vehicle. These roles may influence the behavior in traffic of the surrounding vehicles. E.g.:
 - Civil, ambulance, fire fighting, police, public transport etc..
- Extending Wheel Data by Friction Coefficient:
 - Extending the Wheel Data transmitted by friction coefficients.
 - Doing this, it is possible to run a dynamic/vehicle model by using SensorView or out of standard TrafficUpdate message.
- Add TYPE_TRUCK to vehicle classifications:
 - To align with OpenSCENARIO and OpenLABEL. Also deprecate the use of TYPE_HEAVY_TRUCK and TYPE_SEMITRAILER as ambiguous.

New Features

Vehicle

- Add automated driving function state to host vehicle data:
 - This adds the ability for a host vehicle to report details about the internal state of automated driving functions.
 - Includes several custom states such as:
 - NAME_BLIND_SPOT_WARNING, NAME_FORWARD_COLLISION_WARNING, NAME_LANE_DEPARTURE_WARNING, etc...
- Traffic Command Update
 - Offers a basic backchannel for traffic participant models regarding successful/unsuccessful execution of TrafficCommands. Interpretation is then up to the scenario engine.
 - Improves compatible to OpenSCENARIO semantically which is changing a lot.
- Introducing Operating States:
 - This show if a vehicle is operating or not. It is an overall state that may turn off or on the electrical consumers in the vehicle.

New Features

Environment

- Environmental conditions, added Sun, Wind, CloudState:
 - Extends the environment conditions to include messages that describe the:
 - Cloud Layer.
 - Wind and Sun.
 - Added changes are also aligned with ASAM OpenSCENARIO.

New Features

Other Changes

- Move to current protobuf release to remedy CI breakage
 - Update to protobuf-3.20.1.
- cmake build is missing key features to be properly usable via fetch content:
 - CMake build updated the missing key features to be properly usable via CMake's FetchContent module.
- Correct documentation of Identifier of ReferenceLine
 - Fixes a copy-paste error in the documentation.
- Docu/remove note on singular plural:
 - cleans up the docu a lot, as it deletes this common note in a lot of fields on naming convention for repeated fields:
 - *note OSI uses singular instead of plural for repeated field names.*

New Features

Other Changes

- Tweak Doxygen output:
 - This makes Doxygen more readable and enables automatic brief descriptions.
 - Automatically generate brief output, translate *rules* to a more readable format, and better handle the process of building the documentation.
- Dependability: Bump protobuf version:
 - Update README file to exclude specifying the protobuf version.
- Added coordinate transformation to documentation:
 - Added a explanation of the coordinate transformation in general and between the OSI coordinate systems.

New Features

OSMP:

- Fix link to official documentation of OSMP in its README.
- Added TrafficCommandUpdate to OSMP spec:
 - Extended the OSMP spec to account for the newly added [osi_trafficcommandupdate.proto](#).

Backward Compatibility

Unchanged

- All changes for the current minor release are backward compatible.
- All changes that are set to be deprecated in the future major release are either tagged with an attention “**\attention**” or a note “**\note**” message in the corresponding proto file:

```
// \attention DEPRECATED: This color enum will be removed in version  
// 4.0.0. Use \c ColorDescription instead.
```

Relation to Other Standards

The following standards have been taken into consideration with respect to the relation to other standards:

- **ASAM OpenSCENARIO**
- **ASAM OpenDRIVE**
- ~~ISO 23150~~

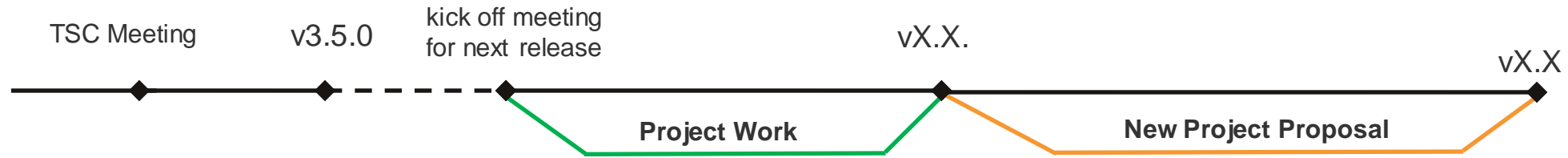
Project Proposal

- <https://code.asam.net/simulation/osi-group/osi-proposal>

Deliverables

- Documentation and OSI deliverables can be directly downloaded from the master branch:
 - <https://github.com/OpenSimulationInterface/open-simulation-interface>

Timeline and Next Steps



- **v3.5.0**
 - Date to be specified depending on TSC's release approval decision.
- **ASAM OSI Proposal Workshop:**
 - Took place on 21.06.2022.

ASAM OSI v3.5.0

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11.08.2022
Online

